Abstract Submitted
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Attosecond ionization dynamics: finding the best path[1] LOREN GREENMAN, Kansas State University — Attosecond processes can frequently be understood from the perspective of time-dependent perturbation theory. Ionization is either a feature of the processes of interest through the information gained from photoelectron yields and angular distributions, or it is a byproduct of the broad bandwidths required for attosecond resolution that must be described to understand the more interesting features. The necessity of including electronic continua in our perturbative states makes the connection between accurate descriptions of correlated states and continuum states more difficult. Recent attempts have had some success at combining perturbation theory, scattering methods, and bound-state quantum chemistry. I will describe our contributions to these methods, along with some examples of their use. One of the key issues in the implementation of such methods is the combination of quantum chemistry and scattering theory at the same level of accuracy, and the evaluation of the necessary integrals mixing bound and continuum states and local and grid basis functions. I will discuss extending these methods by addressing these issues using ideas from variational perturbation theory, which for time-independent states was explored in the 1980s and 1990s by Prof. Anthony Starace.

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